BS EN 13172:2024

BSI Standards Publication

Thermal insulation products — Common evaluation rules

Documents
Document Sharing Hub

Full document details: BS EN 13172:2024

National foreword

This British Standard is the UK implementation of EN 13172:2024. It supersedes BS EN 13172:2012, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/540, Energy performance of materials components and buildings.

A list of organizations represented on this committee can be obtained on request to its committee manager.

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

© The British Standards Institution 2024
Published by BSI Standards Limited 2024

ISBN 978 0 539 25474 7

ICS 91.100.60

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 October 2024.

Amendments/corrigenda issued since publication

Date	Text affected

Documents
Document Sharing Hub

Full document details: BS EN 13172:2024

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13172

October 2024

ICS 91.100.60

Supersedes EN 13172:2012

English Version

Thermal insulation products - Common evaluation rules

Produits isolants thermiques - Règles d'évaluation communes

Wärmedämmstoffe - Gemeinsame Bewertungsregeln

This European Standard was approved by CEN on 1 August 2024.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

© 2024 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. EN 13172:2024 E

Documents
Document Sharing Hub

Full document details: BS EN 13172:2024

Contents

Page

European foreword 4
1 Scope 5
2 Normative references 5
3 Terms, definitions and abbreviated terms 5
3.1 Terms and definitions 5
3.2 Abbreviated terms 6
4 Assessment and verification of constancy of performance 6
4.1 General 6
4.2 Type of production process 6
4.3 Product family 7
5 Verification of constancy of performance - Factory production control 7
5.1 General 7
5.2 Organization 7
5.2.1 General 7
5.2.2 Responsibility and authority 8
5.2.3 Factory production control system review 8
5.3 Documents defining the factory production control system 8
5.4 Inspection and testing 9
5.4.1 General 9
5.4.2 Test equipment 9
5.4.3 Inspection and testing of raw materials and other constituent materials 11
5.4.4 Inspection and testing during production 11
5.4.5 Product testing 11
5.4.6 Inspection and test status 13
5.4.7 Inspection and test records (factory production control log) 14
5.5 Actions in the case of non-constancy of performance of the product 14
5.6 Handling, storage, packaging and marking of products 14
5.7 Traceability of products 14
5.8 Training, qualification and competence 14
6 Assessment of performance (AoP) 15
Annex A (informative) Guidance for conformity of the products under voluntary certification activities (not for CE marking purposes) 16
A.1 General 16
A.2 Bodies involved in the evaluation of conformity procedure 16
A.3 Tasks for the accredited body 16
A.3.1 General 16
A.3.2 Initial inspection of manufacturing plant and of factory production control 16
A.3.3 Sampling 17
A.3.4 Initial testing 17

Documents
Document Sharing Hub
Full document details: BS EN 13172:2024

A.3.5 Continuing surveillance 18
A.4 Conformity mark 22
A.4.1 General 22
A.4.2 Issuance of certificate of conformity 23
A.4.3 Restriction, suspension or withdrawal of certificate 23
Annex B (informative) Guidance for common evaluation of products under AVCP system. 24
B.1 General 24
B.2 Bodies involved in the assessment and verification of constancy of performance (AVCP) 24
B.3 Tasks for the notified body 24
B.3.1 General 24
B.3.2 Initial inspection of manufacturing plant and of factory production control 25
B.3.3 Sampling 25
B.3.4 Assessment of performance 25
B.3.5 Continuing surveillance, assessment and evaluation of the factory production control 26
B.4 Certificate of constancy of performance 28
B.4.1 Issuance of certificate of constancy of performance 28
B.4.2 Restriction, suspension or withdrawal of the certificate of constancy of performance 28
Annex C (informative) Criteria for assessing non-conformity – Procedures in case of a complaint 29
C.1 Complaint on the product declaration 29
C.1.1 General 29
C.1.2 Complaint on the declared thermal resistance or thermal conductivity 29
C.1.3 Complaint on other characteristics 30
C.2 Complaint on a lot 30
Bibliography 31

Documents
Document Sharing Hub
Full document details: BS EN 13172:2024

European foreword

This document (EN 13172:2024) has been prepared by Technical Committee CEN/TC 88 “Thermal insulating materials and products”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2025, and conflicting national standards shall be withdrawn at the latest by April 2025.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13172:2012.

EN 13172:2024 includes the following significant technical changes with respect to EN 13172:2012:

— the adaptation of this document to the terminology used in the European Regulation (EU) No 305/2011 (i.e. Construction Products Regulation - CPR) with AVCP system;

— the removal of references to third parties, bodies and manufacturers into clauses and annexes that can be used in conjunction with harmonised technical specifications;

— the addition of products for civil engineering applications in the scope of this document;

— the addition of a subclause for abbreviated terms;

— the split of Clause 4 into three subclauses;

— the updates and technical adjustments of Clause 5;

— the merging of Annexes B, C and D.

This document is intended to be used as a supporting standard in conjunction with harmonised technical specifications, product standards and any other assessment documents of thermal insulation products to ensure common evaluation rules for all stakeholders.

This document contains three informative annexes:

— Annex A, Guidance for conformity of the products under voluntary certification activities (not for CE marking purposes);

— Annex B, Guidance for common evaluation of the products under AVCP system;

— Annex C, Criteria for assessing non-conformity – Procedure in case of a complaint.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Documents
Document Sharing Hub
Full document details: BS EN 13172:2024

1 Scope

This document specifies common evaluation rules useful for the assessment and verification of constancy of performance of a thermal insulation product with harmonised technical specifications, product standards and any other assessment documents. Harmonised technical specifications, product standards and other assessment documents are called European product specifications in this document.

This document applies to factory made products for buildings, factory made products for building equipment and industrial installations, *in situ* products for buildings, *in situ* products for building equipment and industrial installations, to products for civil engineering applications, and to external thermal insulation composite kits.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12664:2001, *Thermal performance of building materials and products — Determination of thermal resistance by means of guarded hot plate and heat flow meter methods — Dry and moist products of medium and low thermal resistance*

EN 12667:2001, *Thermal performance of building materials and products — Determination of thermal resistance by means of guarded hot plate and heat flow meter methods — Products of high and medium thermal resistance*

EN 12939:2000, *Thermal performance of building materials and products — Determination of thermal resistance by means of guarded hot plate and heat flow meter methods — Thick products of high and medium thermal resistance*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1.1
product
thermal insulation product produced under conditions which are presumed uniform to a given specification and placed on the market

3.1.2
factory production control
documented, permanent and internal control of production in a factory

3.1.3
production line
assemblage of equipment that produces products using a continuous process

Documents
Document Sharing Hub
Full document details: BS EN 13172:2024

3.1.4
production unit
assemblage of equipment that produces products using a discontinuous process

3.1.5
manufacturing plant
all the production equipment on the same site including all production lines and units

Note 1 to entry: The term factory also refers to the manufacturing plant.

3.1.6
assessment of performance
assessment of the performance of the product carried out on the basis of testing (including sampling), calculation, tabulated values or descriptive documentation of the product

3.1.7
verification of constancy of performance
factory production control system, procedures, regular inspections and tests and/or assessments ensuring that the performance in relation to the declared characteristics are maintained

3.2 Abbreviated terms

AoP is the Assessment of performance

VoCP is the Verification of Constancy of Performance

AVCP is Assessment and Verification of Constancy of Performance

FPC is Factory Production Control

4 Assessment and verification of constancy of performance

4.1 General

The assessment and verification of constancy of performance shall include all parts of the tasks given in Clause 5 of this document.

NOTE 1 Annex A is included for the purposes of voluntary activities.

NOTE 2 Annex C is included for the purposes of describing how the case of a complaint may be handled.

NOTE 3 The Annex ZA of the relevant harmonised standard or the European Assessment Document assigns the AVCP tasks for CE marking activities.

4.2 Type of production process

Thermal insulation can be commonly manufactured using two types of production processes:

— For continuous production processes, each production line is considered separately in terms of both AoP and VoCP.

— For discontinuous or batch production processes, production units using the same process in one manufacturing plant are considered together (as if one production line) in terms of both AoP and VoCP.

Documents
Document Sharing Hub
Full document details: BS EN 13172:2024

4.3 Product family

Products may be grouped into families for the purposes of assessment (i.e. AoP and VoCP) subject to the following conditions:

— They shall have the same type of production process and shall be derived from the same family of raw material; a distinction is made between glass wool and stone wool and between foams with different blowing agents.

— They shall differ only in aspects that do not influence the characteristics defined in the relevant European product specification.

— They shall be covered by a single European product specification.

— Products which differ only with regard to some characteristics may be grouped together by their common characteristics.

— Products which are identical except for the facing and for which the different facings have been shown to have the same effect on the declared characteristics (e.g. regarding thermal characteristics, the gas tight facings of some PU products), may be grouped.

Products with a common production specification, originating from the same type of production process and belonging to the same family of raw material may be grouped for verification of constancy of performance, although covered by different European product specifications (e.g. for thermal insulation products intended for buildings, civil engineering applications and for building equipment and industrial installations).

EXAMPLE Cellular glass in accordance with EN 13167:2012+A1:2015 and EN 14305:2015 or expanded polystyrene in accordance with EN 13163:2012+A2:2016 and EN 14309:2015.

The characteristics outside these common families shall be tested product by product.

Products which are outside the scope of a European product specification cannot be grouped for declaration purposes with products declared under the scope of that European product specification.

Provided that a product within the family complies with a European product specification then all products within the same family shall be deemed to comply with the European product specification for the characteristics concerned. If the same product fails to comply with the European product specification then the whole family shall be assumed to have failed to comply with the European product specification.

5 Verification of constancy of performance - Factory production control

5.1 General

Factory production control shall be fulfilled for each manufacturing plant.

5.2 Organization

5.2.1 General

Factory production control shall be operated according to an FPC system that shall be established, documented, operated and maintained to ensure that the products comply with the declared performance.

Documents
Document Sharing Hub
Full document details: BS EN 13172:2024

The FPC system shall consist of procedures, regular inspections and tests and/or assessments and the use of the results to control raw and other incoming materials or components, equipment, the production process and the product.

5.2.2 Responsibility and authority

The responsibility, authority and the interrelationships between all persons who manage, perform, or verify work affecting constancy of performance of the product, shall be assigned. This applies particularly to persons who need the organisational freedom and authority to

a) initiate action to prevent the occurrence of non-constancy of performance of product;

b) identify and record any product deviations from other than declared performances (e.g. aspect, packaging, …).

5.2.3 Factory production control system review

The factory production control system shall be reviewed at appropriate intervals to ensure its continuing suitability, adequacy and effectiveness. Records of such reviews shall be maintained.

NOTE FPC system review is usually included as part of the management review.

5.3 Documents defining the factory production control system

Documents defining the factory production control system shall be relevant to the production and process control used during manufacture of the product. All the elements and provisions shall be documented in a systematic manner in the form of written policies and procedures.

Documents defining the factory production control system shall provide the following details:

a) the factory production control system aims and the organizational structure, responsibilities and authority with regard to constancy of performance of product;

b) the procedures for specifying and verifying the raw materials and other constituent materials;

c) the production control and other techniques, processes and systematic actions that will be used;

d) the inspections and tests to be carried out before, during and after manufacture, together with their frequency (see 5.4) and possible retest procedures (see 5.5);

e) the procedures for handling, storage, packaging, marking and labelling the product (see 5.6);

f) the procedures for affixing traceability product codes and/or markings (see 5.7);

g) the procedures for all persons to receive training in the activities affecting the constancy of performance of the product (see 5.8).

NOTE Documents defining FPC system can be in any format and media and from any source.

Documents defining the factory production control system shall be drawn up and kept up-to-date.

Documents
Document Sharing Hub
Full document details: BS EN 13172:2024

5.4 Inspection and testing

5.4.1 General

All necessary facilities, equipment and persons shall be available to carry out the inspections and tests. Inspections and tests shall be performed according to the FPC system. In case of subcontracting, these provisions shall apply too.

Inspection and testing shall be performed by persons qualified for such tasks on the basis of documented appropriate education, training, skills or experience.

Equipment shall be used in a manner that ensures that any measurement uncertainty is not greater than the necessary measurement capability.

5.4.2 Test equipment

5.4.2.1 General

Tests to demonstrate constancy of performance of the finished product shall be performed using equipment in accordance with the test methods referred to in the European product specification.

The on-going suitability of the test equipment shall be ensured.

The test equipment (including software) shall be capable of achieving the accuracy specified by the test methods referred to in the European product specification.

5.4.2.2 Calibration

The accuracy of the test equipment shall be ensured by periodic calibration. All calibrations and calibration checks shall be traceable to relevant internationally or, failing that, nationally recognized reference test specimens (standards). Where no such reference test specimens exist, the basis used for calibration shall be documented.

NOTE Calibration is the right term for the first time “calibration” and if a calibration check leads to adjustment of the equipment. The calibration check, that is performed e.g. annually for heat flow meter (HFM) equipment (see Table 1), is the right term to use without adjustment of the equipment. To simplify the text here the term “calibration” is used both for calibration and calibration check.

Compliance criteria for each piece of equipment shall be defined.

The equipment shall be calibrated or verified

— before being placed into service;

— periodically respecting the minimum frequencies specified in Table 1;

— after any repair or adjustment (see 5.4.2.4);

— to verify the test results obtained before being taken out of service. If internal checks are sufficient (e.g. for heat flow meter (HFM) equipment) then this calibration is not needed.

Equipment not listed in Table 1 shall be calibrated in accordance with the documented procedures.

The calibration results shall be assessed and the results of such assessments shall be documented. The calibration records shall be maintained for a period of 10 years.

Documents
Document Sharing Hub
Full document details: BS EN 13172:2024